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04/26/2005

**DRAFT**

**ACF INDUSTRIES  
CSM Site Summary**

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**ACF INDUSTRIES**

Oregon DEQ ECSI # 794

12160 NW St. Helens Road

DEQ Project Mgr: Dan Hafley

Latitude: 45.6161°

Longitude: -122.8005°

Township/Range/Section: 2N/1W/34

River Mile: 4 West bank

LWG Member ☐ Yes ☒ No

Upland Analytical Data Status: ☐ Electronic Data Available ☒ Hardcopies only

**1. SUMMARY OF POTENTIAL CONTAMINANT TRANSPORT PATHWAYS TO THE RIVER**

The current understanding of the transport mechanism of contaminants from the uplands portions of the ACF Industries site to the river is summarized in this section and Table 1, and supported in following sections.

**1.1. Overland Transport**

Overland transport pathways include possible contaminated surface water runoff to stormwater private outfall 1 at the adjacent former GP property. However, analytes detected in ditch soil adjacent to the outfall were below screening level values, indicating that soil contaminants are not presently (or historically) being transported in significant concentrations to the river. Furthermore, source removal actions on the site have significantly reduced soil contamination (RETEC 2002).

**1.2. Riverbank Erosion**

Not applicable.

**1.3. Groundwater**

Based on the results from RI activities (RETEC 2002, 2004) and the DEQ's source control decision, the site groundwater does not appear to be a current source of Willamette River sediment contamination (DEQ 2004).

**1.4. Direct Discharge (Overwater Activities and Stormwater/Wastewater Systems)**

There are no direct discharges or overwater activities associated with this site. Stormwater from the ACF property discharges to the Willamette indirectly, after collecting in the drainage ditch on the GP property and entering the GP private outfall.

**1.5. Relationship of Upland Sources to River Sediments**

See Final CSM Update.

**1.6. Sediment Transport**

Not applicable.

## 2. CSM SITE SUMMARY REVISIONS

Date of Last Revision: April 26, 2005

## 3. PROJECT STATUS

Activity		Date(s)/Comments
PA/XPA	<input checked="" type="checkbox"/>	1988 by EMCON, as cited in RETEC (2002)
RI	<input checked="" type="checkbox"/>	2000 to 2002 by RETEC (2002)
FS	<input checked="" type="checkbox"/>	In progress
Interim Action/Source Control	<input checked="" type="checkbox"/>	DEQ proposed Source Control Decision to EPA on 10/5/04, contingent on addressing offsite contamination in FS
ROD	<input type="checkbox"/>	
RD/RA	<input type="checkbox"/>	
NFA	<input checked="" type="checkbox"/>	Proposed by E&E and concurred by EPA in 1991, before designation of Portland Harbor as a Superfund site.

DEQ Portland Harbor Site Ranking (Tier 1, 2, or 3): Tier 1

## 4. SITE OWNER HISTORY

Sources: Multnomah County Assessment and Taxation, Polk City of Portland directories, DEQ 1999, RETEC 2002

Owner/Occupant	Type of Operation	Years
American Car Foundry/ACF Industries - owner	Vacant	1968 – present
Pacific Substations/Pacific Metal Substations, Inc. - operator	Transformer repair	Unknown
American Car Foundry/ACF Industries - operator	Cleaning and refurbishing railroad cars	1968 - 1980
EMC Industries, Inc. – lessee to ACF	Wooden crate and pallet fabrication	Unknown
Richmond Tank Car and Manufacturing Co. - operator	Railcar repair and repaint facility	1960 - 1968
Kingsley Lumber Co. - owner	Operated lumber mill SE of site; it is unknown whether Kingsley Lumber used the site for its operations	Unknown (possibly 1930s) - 1968

## 5. PROPERTY DESCRIPTION

ACF Industries owns the vacant, 5.98-acre tract on the east side of NW St. Helens Road (U.S. Hwy 30), southeast of the highway's intersection with NW Marina Way. The tract is situated in a major industrial development, approximately 800 feet from the west bank of the Willamette River at approximately RM 4. To the north, beyond NW Marina Way, is the vacant Linnton Oil Fire Training Grounds site and an adjoining wetland area. The site is separated from the Willamette River by a former Georgia-Pacific (GP) wood chip plant (DEQ 1999), now referred to as the Morse Brothers property. The site is bounded on the east by the Burlington Northern and Santa Fe Railroad (BNSF) right-of-way, which is slightly

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elevated above the ACF property.

The site has been vacant and inactive since 1991, when all of the buildings, aboveground storage tank, and an underground tank were removed (ACF Industries 1999). Much of the site is now overgrown with blackberries and other non-native vegetation, although some areas northwest and southwest of the former paintshop structure are devoid of vegetation. The ACF site is about 30 to 50 feet above mean sea level. Most of the site is flat, sloping gently to the north (towards the wetland area). Steep embankments are located along the site's northwestern and southwestern boundaries.

Prior to 1971, stormwater runoff from the Portland Hills was routed across the northern part of the ACF site. Sometime between 1971 and 1974, runoff was rerouted to two culverts that pass beneath the western and southern portions of the ACF site and connect to a stormwater sewer at the northern end of the GP property. The sewer discharges to the river through an outfall (private outfall 1) near the GP property's northeast corner (DEQ 1999).

A small stormwater detention pond is located in the northeast corner of the property adjacent to the BNSF right-of-way. A third culvert provides overflow for stormwater from the ACF property onto the adjacent GP property (referred to as the eastern culvert).

## 6. CURRENT SITE USE

The site is currently unused. Only one building, a small steel shed that housed the site's water main, remains on the property. Most of the property is covered with grass and small shrubs, with the exception of pavement remaining from the former parking lot.

## 7. SITE USE HISTORY

Kingsley Lumber Co. owned the site from approximately 1930 to 1968. Early site photos from the 1930s show that there were seven homes on the southwest quarter of the site. Aerial photos indicate that four large buildings occupied the northeastern half of the site in 1936, but it is not known what operations occurred there or whether the operations were associated with Kingsley Lumber Co. Three of these structures were removed by 1957 (DEQ 1999).

According to DEQ (1999), from approximately 1957 to 1980, the site was used for the cleaning, painting, and refurbishment of railroad tank cars, first by Richmond Tank Car, Pacific Metal Substations, and later by ACF Industries. Tank cars were rinsed out with high-pressure cleaning hoses. Repainting activities included sandblasting with *Black Beauty*, a sandblast grit composed of coal slag cinders. ACF leased the property to EMC Industries during the 1980s (exact dates unknown) for use as a wooden crate and pallet fabrication facility (DEQ 1999).

Until sometime between mid-1971 and mid-1974, untreated wastewater from the pressure washing operation was discharged to an open, unlined ditch that flowed along the site's northeastern boundary, emptying into an unlined settling pond at the property's northeastern corner. Approximately 1,100 to 10,000 gallons per day was discharged into the ditch. Sometime later, ACF implemented several control measures, including construction of a concrete pad; installation of an in-line, 10,000-gallon underground settling tank; and installation of a sluice gate to capture separated, low-density, non-aqueous-phase organics. Solid and liquid wastes were reportedly shipped offsite to a licensed hazardous waste facility. At the peak of operations, about 25 cars were cleaned every month. The amount of waste generated, collected, and shipped offsite during this period was approximately 10,000 gallons a month (RETEC 2002).

Wastewater in the settling pond was occasionally used as a dust-suppressing agent on the site's unpaved areas, but generally was allowed to evaporate or infiltrate. Prior to 1971, excess wastewater evidently flowed through a culvert that discharged to the wetlands area northeast of the property. Occasionally, the pond overflowed through a culvert beneath the adjoining railroad tracks and into a low-lying area on the

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GP property. Between 1971 and mid-1974, the wastewater in the low-lying area discharged to the Willamette through a stormwater sewer near the northwest corner of the GP property (DEQ 1999; RETEC 2002). ACF also constructed a second, temporary wastewater pond at the north end of the site to receive wastewater while the sludge was being removed from the site's original settling pond. It is possible that sandblast grit and other bulk wastes removed from railcars prior to cleaning were buried here (DEQ 1999).

In 1971, the U.S. Coast Guard (USCG) investigated a report of pollution in the wetlands area north of the ACF facility. They found "quite a bit of heavy oil" that appeared to be discharging "for several years" from culverts from the ACF Industries and the Linnton Oil Fire Training sites. Although USCG stated that wastes could enter the river during periods of heavy rainfall, the complaint was referred to DEQ. DEQ directed ACF to improve its wastewater handling practices, but there is no indication that any cleanup occurred in the wetland area (DEQ 1999; RETEC 2002).

During the 1970s, ACF sought improved wastewater management methods to support expansion. ACF was unable to obtain a POTW connection or a surface water discharge permit, which contributed to the facility's ultimate closure in 1980. In 1988, all the buildings were demolished, and drums, cans, battery packs, sandblasting wastes, and PCB-containing capacitors were removed from the property. One underground and one aboveground storage tank also were removed.

In 1990, ACF Industries hired RETEC to investigate and clean up the site. Five wells were installed on the site as part of the source removal action and were abandoned shortly thereafter. In 1990-1991, during the in-place cleaning and decommissioning of a 10,000-gallon underground settling tank, it was discovered that the tank had leaked in the past. The tank was subsequently removed. Groundwater within the tank excavation pit contained free petroleum; approximately 2,000 gallons of oily water was removed. Remedial activities were completed in February 1991. More than 6,800 cubic yards of soil were removed, and the excavations were refilled with clean soil and regraded (DEQ 2003).

EPA's contractor, Ecology & Environment, recommended *No Further Action* under the Superfund program in 1991. DEQ concluded in 1993 that there was insufficient information to add the site to the Confirmed Release List. Nevertheless, following the listing of Portland Harbor on the NPL, DEQ issued a Unilateral Order in 2000 requiring ACF to conduct a remedial investigation at its property (RETEC 2002). A feasibility study is in progress.

## 8. CURRENT AND HISTORIC SOURCES AND COPCS

Current understanding of the historic and current potential upland and overwater sources at the site is summarized in Table 1. The following sections provide a brief overview of the potential sources at the site requiring additional discussion.

### 8.1. Uplands

Potential upland sources include possible contaminated soils remaining on the property. Areas A and B [see Supplemental Figure 5-1 from RETEC (2002)] contain elevated arsenic concentrations in soil (discussed further in Section 10.1). Elevated concentrations in Area A would be considered a hot spot under Oregon soil cleanup standards.

Although source removal actions performed on the site since the 1990s have removed much of the soil contamination, stormwater runoff could still contain surficial contaminants. Stormwater occasionally discharges to the GP stormwater pipe, which ultimately discharges to the Willamette River. DEQ believes that historic site runoff during periods when surface soils were contaminated, as well as when untreated process wastewater was discharged to the ground surface and drums were emptied into onsite ditches, most likely contributed to sediment



contamination in the vicinity of the GP outfall (DEQ 1999).

## 8.2. Overwater Activities

☐ Yes ☒ No

## 8.3. Spills

Known or documented spills at the ACF site were obtained either from DEQ's Emergency Response Information System (ERIS) database for the period of 1995 to 2004, from oil and chemical spills recorded from 1982 to 2003 by the U.S. Coast Guard and the National Response Center's centralized federal database [see Appendix E of the Portland Harbor Work Plan (Integral et al. 2004)], from facility-specific technical reports, or from DEQ correspondence. Only one incident observed by DEQ is described below.

In 1974, a DEQ inspector observed ACF employees dump a drum of boric acid into one of the site's wastewater ditches. When confronted, the ACF plant manager explained that the material had been removed from a railcar during cleaning, that such incidents "occasionally" occurred, and that ACF had nowhere else to dispose of the material. DEQ issued a *Notice of Violation*, ordering the company to discontinue such disposal practices (DEQ 1999).

## 9. PHYSICAL SITE SETTING

Several test pits, investigative borings, and monitoring wells have been completed at the site as part of the Subsurface Investigation (RETEC 1990), Phase I RI (RETEC 2002), and Phase II RI (RETEC 2004). The maximum depth investigated was 24 feet bgs.

### 9.1. Geology

Test pit and boring logs indicate the presence of fill material overlying alluvial deposits. The fill material was identified as mostly sand and gravel from 1 to 13 feet thick. The alluvium was identified as silt and clay with sand and sand/gravel interbeds up to six feet thick. Organic debris (i.e., roots grass, reeds, and twigs) was noted within the alluvium (RETEC 2002).

### 9.2. Hydrogeology

Based on water level data collected from ACF monitoring wells and offsite Morse Brothers monitoring wells, groundwater at the site was determined to flow northeast toward the Willamette River. Using water level data collected from the ACF monitoring wells and stage data for the Willamette River, the average groundwater gradient was estimated to be 0.04 feet per foot. The depth to groundwater at the site was observed to be relatively shallow; the depth to groundwater was observed to be as little as 5.0 feet bgs in the northern portion of the property near the settling pond. The maximum depth to groundwater was measured at 9.6 feet bgs (RETEC 2002).

## 10. NATURE AND EXTENT (*Current Understanding*)

The current understanding of the nature and extent of contamination for the uplands portions of the site is summarized in this section.

### 10.1. Soil

#### 10.1.1. Upland Soil Investigations

☒ Yes ☐ No

During EMCON's environmental site assessment in 1988, surface and subsurface soil samples were collected in 10 locations on the ACF site, including from areas on the northeast side of the paint/repair shop and blast area, northwest of the blast area, near the 10,000-gallon UST, and to the south and southwest of the steam rack area. Concentrations

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of toluene, ethylbenzene, and total xylenes were detected at 0.22, 2.23, and 23.6 mg/kg, respectively in four surface soil samples collected from the vicinity of the paint/repair shop. These concentrations were less than EPA Region 9 Preliminary Remediation Goals (PRGs) (EMCON 1989, as cited in RETEC 2002).

Additional soil sampling was performed during a pre-divestiture audit in 1988. Samples were collected from borings drilled to depths up to 12 feet bgs at 13 locations. Leachable barium was detected in several samples at concentrations ranging from 0.11 to 1.0 mg/kg. Some soil samples also contained leachable lead at concentrations ranging from 0.2 to 0.9 mg/kg. PAHs also were detected; the highest PAH concentrations were found in a sample collected adjacent to the UST. Of the PAHs detected, only benzo(a)anthracene and benzo(a)pyrene exceeded the industrial PRGs. VOCs and phenols were also detected in several soil samples, notably xylenes at a concentration of 477 mg/kg. PCBs were detected at concentrations up to 2.23 mg/kg. Concentrations of oil and grease detected in soil samples ranged from 85 to 52,425 mg/kg (RETEC 2002).

RETEC performed a subsurface investigation of the ACF site in 1990 in order to delineate and characterize soil contamination found in previous investigations. Soil samples were collected from 12 test pits and one soil boring, and were analyzed for EPA Toxicity metals. Of the EPA Toxicity metals, only barium was detected; the maximum concentration detected was 0.4 mg/kg. Similar to the 1988 investigation, toluene, xylenes, and ethylbenzene were detected in soil samples in the vicinity of the paint/repair shop and UST at concentrations up to 5.51, 25.6, and 124 mg/kg, respectively. The PAHs, acenaphthene and fluoranthene, were detected in samples collected at a depth of 4-5 feet bgs in the settling pond area at concentrations of 28.7 and 26.6 mg/kg, respectively (RETEC 2002). Contaminated soil was removed from the site shortly thereafter.

During the RI in 2001, RETEC collected additional surface and subsurface soil samples. Minimum and maximum concentrations of COIs in surface soil are provided below.

Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)
<b>Total Petroleum Hydrocarbons (TPH)</b>		
TPH-D	NA	86
TPH-Dx (Heavy Oil Range)	NA	210
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>		
Acenaphthene	0.070 U	0.120
Phenanthrene	0.070 U	0.720
Anthracene	0.070 U	0.440
Fluoranthene	0.070 U	1.5
Benzo(b)fluoranthene	0.070 U	1.7
Benzo(k)fluoranthene	0.070 U	1.4
Chrysene	0.070 U	1.1
Pyrene	0.070 U	3.0
<b>PCBs</b>		
Aroclor-1254	0.035 U	5.6
Aroclor-1260	0.035 U	7.5
<b>Metals (total)</b>		
Arsenic	6 U	1,120
Cadmium	0.2 U	3.1
Chromium	14.3	111
Copper	17.5	1,330
Lead	3	1,370

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Zinc	44	3,900
mg/kg = milligrams per kilogram (ppm)		
U = Analyte is below detection limits.		

Of the heavy metals, only arsenic exceeded EPA Region 9 PRGs. Arsenic was detected in six of the nine surface soil samples analyzed; concentrations of arsenic exceeded EPA Region 9 PRGs in all six of these samples. Arsenic concentrations were highest in the vicinity of the former paint shop blast area, suggesting a link to sand blasting operations conducted here. Arsenic detected at sampling location TP-7 [see Supplemental Figure 5-1 from RETEC (2002)] was high enough (1,120 mg/kg) to be considered a hot spot under Oregon's human health risk levels (OAR 340-122-115). Beryllium was detected in all nine surface soil samples, at concentrations ranging from 0.26 to 0.8 mg/kg. PCBs were detected at very low concentrations in seven of the nine samples. Concentrations of heavy metals and PCBs were lower in subsurface soils than in surface soils. Only arsenic and beryllium concentrations exceeded Region 9 PRGs in subsurface samples.

TPH was also detected in four of the nine samples, but at very low concentrations. PAHs were detected at location TP-7 at total concentrations as high as 12.7 mg/kg. Of the samples with detectable TPH concentrations, only one sample collected from the former base of the detention pond contained diesel-range and oil-range TPH. Concentrations of diesel and oil-range TPH in this sample were 8,200 mg/kg and 5,800 mg/kg, respectively. PAH concentrations slightly exceeded Region 9 PRG values in this same sample. A deeper sample from this same boring showed significantly lower concentrations of these analytes.

RETEC also sampled the ditch soils located within the BNSF right-of-way adjacent to the ACF property. Concentrations of most analytes were low, except for arsenic, which ranged in concentration from less than 9 to 52 mg/kg. Concentrations of analytes detected in ditch soils adjacent to the GP outfall 1 were either below method reporting limits or below Region 9 PRG values. The absence of elevated arsenic at this location suggests that arsenic-contaminated soil is not being transported by stormwater to the Willamette River (RETEC 2002).

#### 10.1.2. Riverbank Samples

☐ Yes ☒ No

The site is not located adjacent to the Willamette River.

#### 10.1.3. Summary

Surface soils in the vicinity of the paint shop blasting area were found to contain elevated concentrations of arsenic. The concentration of arsenic detected in Area A (see Supplemental Figure 5-1) was high enough to exceed DEQ hot spot standards for existing site conditions. Arsenic concentrations generally decreased with depth and distance from the former paint shop sand blasting area. Concentrations of all analytes, including arsenic, were below screening level values in ditch soils adjacent to the GP outfall, indicating that stormwater runoff from the ACF site is not a significant source of contamination to the Willamette River (RETEC 2002).

### 10.2. Groundwater

#### 10.2.1. Groundwater Investigations

☒ Yes ☐ No

Five monitoring wells were installed at the site during the 1990 Subsurface Investigation (RETEC 1990). Available records indicate that the wells were sampled for only one monitoring event and abandoned shortly thereafter as part of the site removal action. During the Phase I RI, five probe borings were completed at the site. Based on high turbidity levels, the analytical results for samples collected from the probe boring were not

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considered to be valid. Subsequently, three monitoring wells, labeled MW-1 through MW-3, were installed adjacent to three probe boring locations (RETEC 2002).

RI groundwater investigation activities have included collecting data from two monitoring wells located on Morse Brothers property and immediately downgradient from the ACF site, labeled (MW-1(G) and MW-3(G)). The data have been used to assess the extent of the ACF groundwater plumes.

During the Phase II RI, additional groundwater samples were collected from monitoring wells MW-1, MW-3, MW-1(G), and MW-3(G) to further assess the ACF groundwater plumes (RETEC 2004).

**10.2.2. NAPL (Historic & Current)**

☒ Yes ☐ No

In 1990-1991, during decommissioning of the 10,000-gallon underground settling tank, free product was observed on groundwater in the excavation pit. The observed product and water was removed during subsequent remedial excavation activities.

**10.2.3. Dissolved Contaminant Plumes**

☒ Yes ☐ No

During the 1990 subsurface investigation, petroleum hydrocarbons were detected in groundwater samples collected from three of the five monitoring wells at concentrations ranging from 10,000 to 43,000 µg/L (RETEC 1990). A petroleum sheen was also noted on the groundwater surface in the three wells. During the Phase I RI, petroleum hydrocarbons, chlorinated solvents, chlorobenzenes, and metals (lead, arsenic, copper, and zinc) were detected in samples collected from probe borings and monitoring wells (RETEC 2002). During the Phase II RI, groundwater samples were collected from MW-1, MW-3, MW-1(G), and MW-3(G). The samples were analyzed for VOCs, PAHs, and total metals. Chlorinated solvents, chlorobenzenes, and metals (arsenic and zinc) were detected in the groundwater samples (RETEC 2004).

**Plume Characterization Status** ☒ Complete ☐ Incomplete

According to Mr. Dan Hafley, DEQ Project Manager for the ACF site, groundwater has been adequately characterized at the site (Hafley 2004, pers. comm.).

**Plume Extent**

The fate and transport model SOLUTE was used to estimate concentrations of contaminants of concern approximately 1,000 feet downgradient from the ACF site (i.e., at the shoreline of the Willamette River). The modeling results indicate that contaminant concentrations in the downgradient portion of the plume near the river are estimated to be below human and ecological screening levels (RETEC 2002).

In addition, groundwater samples collected from Morse Brothers monitoring wells MW-1(G) and MW-3(G) located immediately downgradient from the ACF site did not contain detectable concentrations of VOCs, SVOC, or petroleum hydrocarbons, implying that the ACF plumes probably do not extend to the river (RETEC 2004).



**Min/Max Detections (Current situation)**

Groundwater analytical data presented below are primarily based on data collected during the Phase II RI (RETEC 2004). Groundwater data were not collected from monitoring well MW-2 during the 2003 monitoring event. Therefore, data collected from MW-2 during the 2001 Phase I RI were included in the table as noted.

Analyte	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)
<i>Volatile Organic Compounds (VOCs)</i>		
Benzene	<0.1	1.2*
1,2,4-Trichlorobenzene	<0.1	1.3*
Trichloroethene	<0.1	1.0
Tetrachloroethene	<0.1	2.7
Chlorobenzene	<0.1	110*
1,2-Dichlorobenzene	<0.1	59*
1,3-Dichlorobenzene	<0.1	6.5*
1,4-Dichlorobenzene	<0.1	160*
<i>Metals (total)</i>		
Arsenic	<0.1	6
Copper	<0.1	3*
Zinc	<0.1	475

µg/L: micrograms per liter

\*: Data collected from monitoring well MW-2 during the Phase I RI

**Current Plume Data**

The estimated extent of impacted groundwater at the site is shown in Figure 2 based on groundwater data collected during the Phase II RI.

**Preferential Pathways**

No information was available in the DEQ file to indicate that preferential pathways have been assessed at the site.

**Downgradient Plume Monitoring Points (min/max detections)**

Groundwater samples obtained from two monitoring wells located on the Morse Brothers site, MW-1(G) and MW-3(G), did not contain detectable concentrations of VOCs, SVOC, or petroleum hydrocarbons. These wells are located adjacent to and downgradient from the ACF site.

**Visual Seep Sample Data**

☐ Yes ☒ No

No seeps have been identified at the site (GSI 2003).

**Nearshore Porewater Data**

The site is located inland from the river. Available documents indicate that nearshore porewater data have not been collected at the Morse Brothers site.

**Groundwater Plume Temporal Trend**

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Groundwater plume temporal trend information was not documented.

#### 10.2.4. Summary

Groundwater investigation activities include data collected from onsite probe borings and monitoring wells and offsite monitoring wells (RETEC 1990, 2002, 2004). Petroleum hydrocarbons, chlorinated solvents, chlorobenzenes, and metals (lead, arsenic, copper, and zinc) were detected in the groundwater samples (RETEC 2004). The DEQ has indicated that the ACF groundwater plumes have been adequately characterized (DEQ 2004). In addition, the DEQ has indicated that impacted groundwater at the site is not likely to be a current source of contamination to the Willamette River based on the lack of detectable analyte concentrations in downgradient monitoring wells and the results of fate and transport modeling (DEQ 2004).

### 10.3. Surface Water

- 10.3.1. Surface Water Investigation ☐ Yes ☒ No
- 10.3.2. General or Individual Stormwater Permit (Current or Past) ☐ Yes ☒ No
- Do other non-stormwater wastes discharge to the system? ☐ Yes ☒ No
- 10.3.3. Stormwater Data ☐ Yes ☒ No
- 10.3.4. Catch Basin Solids Data ☐ Yes ☒ No
- 10.3.5. Wastewater Permit ☐ Yes ☒ No

Up until some time between 1971 and 1974, wastewater from the pressure washing operation was discharged untreated to an open, unlined ditch along the site's northeastern property line. ACF submitted a POTW application in 1970; however, the application was rejected because the nearest sewer collection was 0.5 mile from the property. ACF also attempted to obtain a surface water discharge permit, but was unsuccessful.

- 10.3.6. Wastewater Data ☐ Yes ☒ No
- 10.3.7. Summary

There are no direct surface water discharges associated with this site. Stormwater from the ACF property discharges to the Willamette indirectly, after collecting in the drainage ditch on the GP property and entering the GP private outfall. During the RI, RETEC (2002) determined that the potential for current contaminant migration in stormwater was insignificant.

### 10.4. Sediment

- 10.4.1. River Sediment Data ☐ Yes ☒ No
- 10.4.2. Summary

The ACF Industries property is landlocked and is located approximately 800 feet from the Willamette River. Other than indirect stormwater runoff to private outfall 1, there are no direct migration pathways for contaminants originating on the ACF site to reach the river.

See Final CSM Update.

## 11. CLEANUP HISTORY AND SOURCE CONTROL MEASURES

### 11.1. Soil Cleanup/Source Control

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During their operation history, ACF implemented the following source control measures:

- Construction of a concrete pad (known as the steam rack) and installation of an underground settling tank (old tank railcar, since removed) and a sluice gate to capture separated, low-density, non-aqueous-phase organics between 1971 and 1974. Solid and liquid wastes were reportedly shipped offsite.
- Segregation of offsite stormwater (from the western and southern culverts) from onsite stormwater and wastewater in 1972.
- Removal of sludge from the detention pond at the northeast corner of the site between 1970 and 1971.
- Removal of an aboveground diesel tank, underground leaded gasoline storage tank, and various accumulated wastes in 1988.
- In-place decommissioning of the 10,000-gallon underground setting tank in 1988, followed by complete removal in 1991.
- Removal of more than 6,800 cubic yards of contaminated soil and 2,000 gallons of oily water from the excavation during a tank removal in 1991.

### **11.2. Groundwater Cleanup/Source Control**

In 1991, during decommissioning of the 10,000-gallon underground settling tank, free product was observed on groundwater in the excavation pit. Approximately 2,000 gallons of oily water was removed from the pit.

### **11.3. Other**

Various piles of drums, cans, battery packs, sandblasting wastes, and PCB-containing capacitors were removed in 1991.

### **11.4. Potential for Recontamination from Upland Sources**

See Final CSM Update.

## **12. BIBLIOGRAPHY / INFORMATION SOURCES**

### **References cited:**

ACF Industries. 1999. Personal communication (letter of April 5, 1999 to S. Fortuna, DEQ, from R. Hyink, Mgr. Safety and Health Dept.). ACF Industries, St. Charles, MO.

DEQ. 1999. DEQ Site Assessment Program Strategy Recommendation: ACF Industries. Oregon Department of Environmental Quality, Portland, OR.

DEQ. 2003. DEQ Site Summary Report – Details for Site ID 794. DEQ Environmental Cleanup Site (ECSI) Database. Accessed December 5, 2003.  
[www.deq.state.or.us/wmc/ecsi/ecsidetail.asp?seqnbr=794](http://www.deq.state.or.us/wmc/ecsi/ecsidetail.asp?seqnbr=794).

DEQ. 2004. DEQ Source Control Decisions (Completed or Pending) August 2004.  
[http://www.deq.state.or.us/nwr/PortlandHarbor/PH\\_SCD\\_08\\_04.pdf](http://www.deq.state.or.us/nwr/PortlandHarbor/PH_SCD_08_04.pdf).

Ecology & Environment. 1991. Site Inspection Report for ACF Industries, Inc., Portland, OR. Prepared for U.S. Environmental Protection Agency. Ecology & Environment (*not seen, as cited in RETEC 2002*)

EMCON. 1989. Preliminary Assessment, ACF Industries. Prepared for Oregon Department of Environmental Quality, Portland, OR. EMCON/Sweet Edwards, Portland, OR.

Hafley, D. 2004. Personal communication (e-mail of October 25, 2004, from Dan Hafley, DEQ, to Eric

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Collins of Groundwater Solutions, Inc. regarding the status of the ACF site). Oregon Department of Environmental Quality, Portland, OR.

GSI. 2003. Technical Memorandum: Results of Seep Reconnaissance Survey, River Mile 22-10.5, Lower Willamette River. Groundwater Solutions, Inc., Portland, OR.

Integral, Windward, Kennedy/Jenks, Anchor Environmental, and Groundwater Solutions. 2004. Portland Harbor RI/FS Programmatic Work Plan. Prepared for the Lower Willamette Group, Portland, OR. Integral Consulting, Inc., Mercer Island, WA.

RETEC. 1990. Subsurface Investigation Report: Former Railcar Maintenance Yard, ACF Industries, Portland. Remediation Technologies, Inc. Kent, WA.

RETEC. 2002. Remedial Investigation Report, ACF Industries Property, 12160 NW St. Helens Rd., Portland. The RETEC Group, Seattle, WA.

RETEC. 2004. Final Remedial Investigation, ACF Industries Property, Portland, Oregon. The RETEC Group, Inc., Seattle, WA.

**Other relevant references/information sources:**

DEQ. 2002. Cleanup Project Status Report, ACF Industries. Oregon Department of Environmental Quality, Northwest Region Voluntary Cleanup Program, Portland, OR.

EDR. 2002. EDR Environmental Atlas, Portland Harbor, Multnomah. OR. Environmental Data Resources, Southport, CT.

GSI. 2003. Portland Harbor RI/FS: Upland Groundwater Data Review Report, River Mile 2-11, Lower Willamette River. Prepared for the Lower Willamette Group, Portland, OR. Groundwater Solutions Inc., Portland, OR.

**Figures:**

Figure 1. Site Features

Figure 2. Extent of Impacted Groundwater

**Tables:**

Table 1. Potential Sources and Transport Pathways Assessment

**Supplemental Scanned Figures:**

Figure 5-1. Surface Soil Locations and Measured Arsenic Concentrations (RETEC 2002)



## **FIGURES**

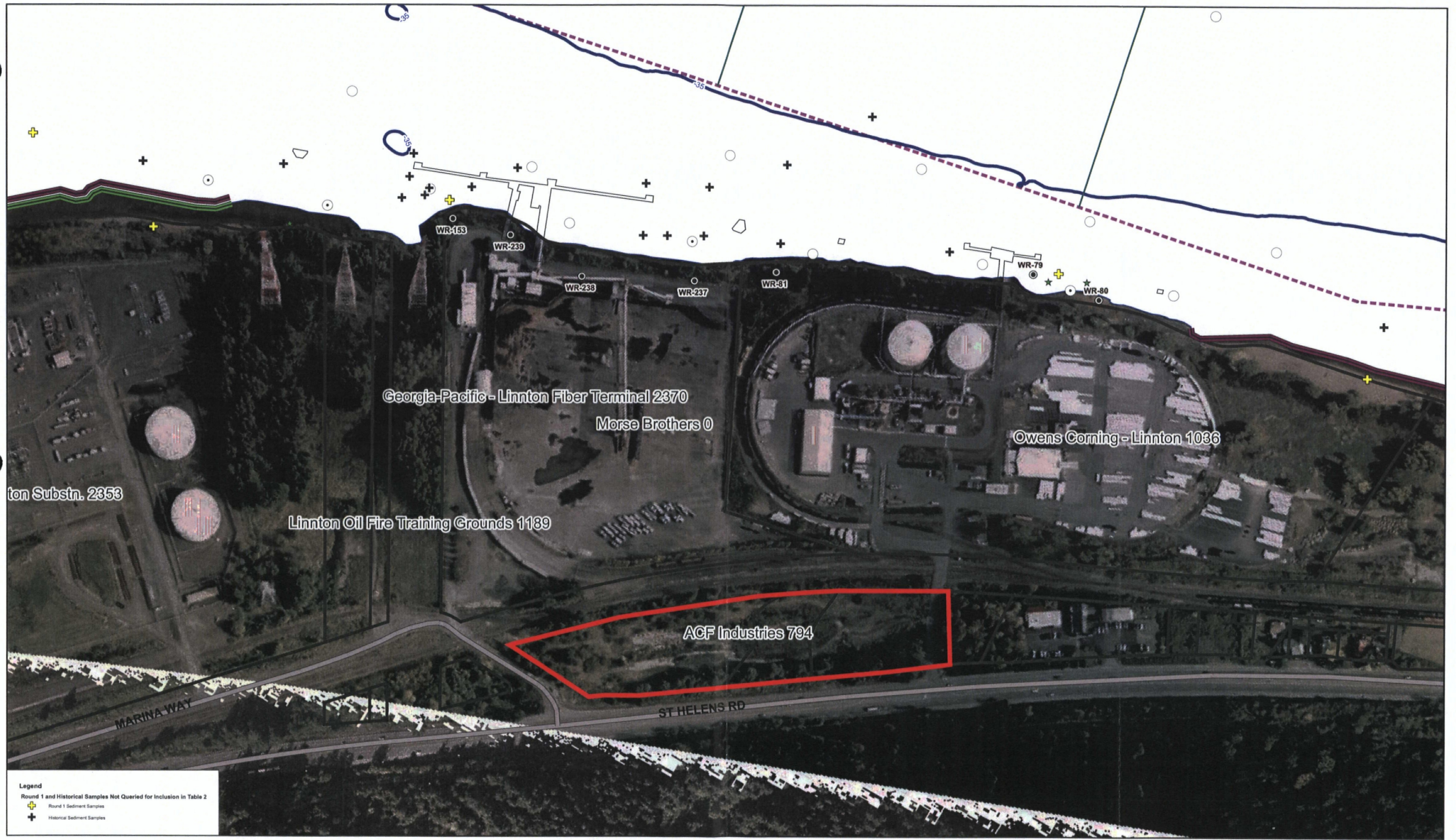
Figure 1. Site Features

Figure 2. Extent of Impacted Groundwater

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**Legend**  
 Round 1 and Historical Samples Not Queried for Inclusion in Table 2  
 Round 1 Sediment Samples  
 Historical Sediment Samples

**Legend**

- Outfalls
- Seep Photo Location (Not location of actual Seep)
- Selected ECSI Site Property Boundary
- Navigation Channel

- Docks & In-water Structures
- River Miles
- 35ft. Contour (NAVD 88)

- Human Use Areas**
- Dockside Worker
  - Recreational Beach Use
  - Transient

**LWG Round 2 Proposed Sediment Samples**

- Surface Sample Only
- Core & Surface Sample



0 100 200 400 Feet

**DRAFT**

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Figure 1-Site Features  
 Portland Harbor RI/FS  
 Conceptual Site Model  
 ACF Industries  
 ECSI 794

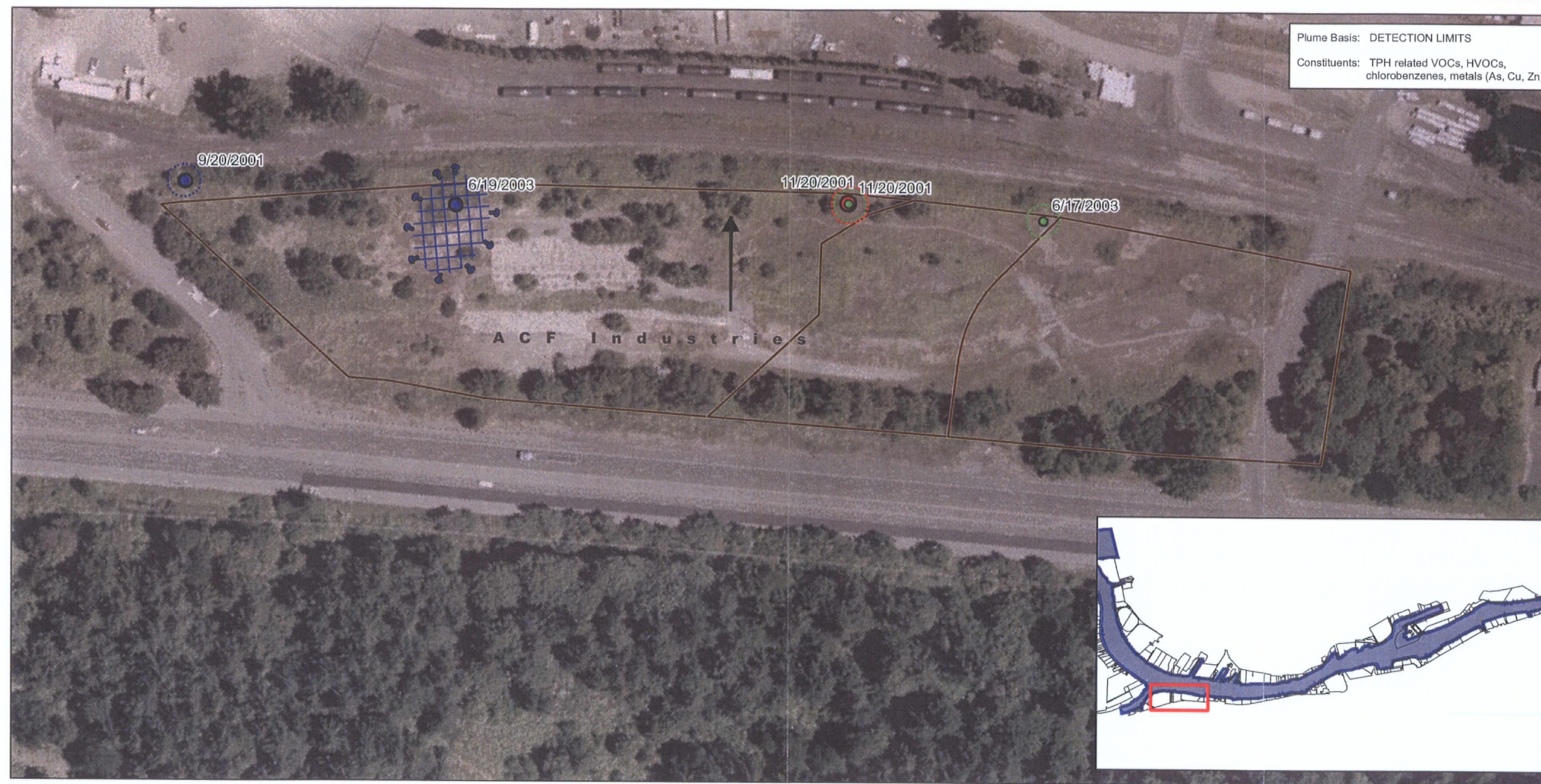
Map Document: (C:\GIS\Projects\Portland\_Harbor\ LWG-Map-Projects\Conceptual\_Site\_Model\Sample\_Locations.mxd)  
 Plot Date: 03/18/2005

Aerial Photo Date: October 2001.  
 Base Map features from Portland Metro's RLIS.

Outfall information contained on this map is accurate according to available records; however, the City of Portland makes no warranty, expressed or implied, as to the completeness or accuracy of the information published (updated March 2005).



**DRAFT**



0 75 150 Feet

FEATURE SOURCES:  
Transportation, Water, Property, Zoning or Boundaries: Metro RLIS.  
ECSI site locations were summarized in December, 2002  
and January, 2003 from ODEQ ECSI files.

Map Creation Date: Monday, November 22, 2004

File Name: Fig2\_ACFIndustries\_SummaryMap.mxd



## LEGEND

- Site Boundary
- General Groundwater Flow

**Contaminant Type**

- Petroleum related
- VOCs (includes chlorobenzenes)
- Metals (As, Zn)

**Extent of impacted groundwater**  
For details, refer to plume interpretation  
table in CSM document.

- Single or isolated detection of COI's.  
Extent or continuity of impacted groundwater  
between sample points is uncertain. Color based  
on contaminant type.
- Estimated extent of impacted groundwater area.  
Color based on contaminant type.

**Figure 2**  
**Portland Harbor RI/FS**  
**ACF Industries**  
**Upland Groundwater Quality Overview**

PRIVILEGED AND CONFIDENTIAL:  
Work product prepared in anticipation of litigation.

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to change in whole or part



## **TABLES**

**Table 1. Potential Sources and Transport Pathways Assessment**

**ACF Industries #794**

Table 1. Potential Sources and Transport Pathways Assessment

[illegible]

Notes:

All information provided in this table is referenced in the site summaries. If information is not available or inconclusive, a ? may be used, as appropriate. No new information is provided in this table.

✓ = Source, COI are present or current or historic pathway is determined to be complete or potentially complete.

? = There is not enough information to determine if source or COI is present or if pathway is complete.

Blank = Source, COI and historic and current pathways have been investigated and shown to be not present or incomplete.

UST      Underground storage tank

AST Above-ground storage tank

TPH Total petroleum hydrocarbons

VOCs Volatile organic compounds

SVOCs Semivolatile organic compounds

PAHs Polycyclic aromatic hydrocarbons

BTX Benzene, toluene, ethylbenzene, and xylenes

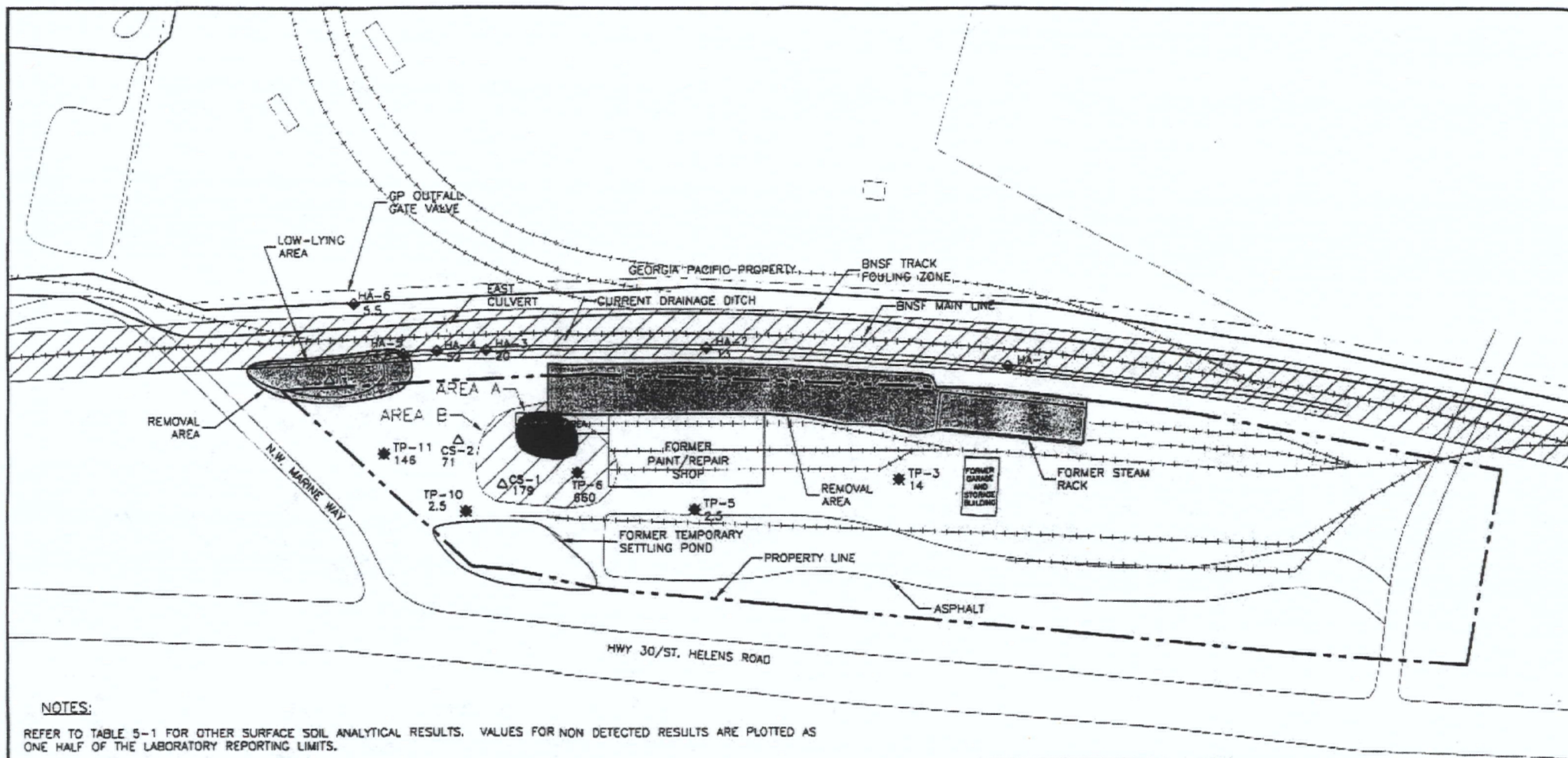
PCBs Polychlorinated biphenols

DO NOT QUOTE OR CITE:

This document is currently under review by US EPA

## **SUPPLEMENTAL FIGURES**

Figure 5-1. Surface Soil Locations and Measured Arsenic Concentrations (RETEC 2002)



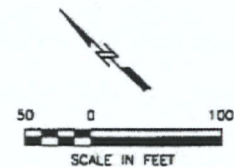
#### NOTES:

REFER TO TABLE 5-1 FOR OTHER SURFACE SOIL ANALYTICAL RESULTS. VALUES FOR NON DETECTED RESULTS ARE PLOTTED AS ONE HALF OF THE LABORATORY REPORTING LIMITS.

1. BASELINE RISKS ASSOCIATED WITH ARSENIC CONCENTRATIONS IN SURFACE SOILS AT LOCATION TP-7 WERE DETERMINED TO RESULT IN A CALCULATED INDIVIDUAL COMPOUND CANCER RISK IN EXCESS OF  $10^{-6}$  (SEE SECTION 6.5)
2. EXCLUDING THE SOILS OF AREA A AND AREA B THE CUMULATIVE RESIDUAL RISK ASSOCIATED WITH THE SITE IS  $2 \times 10^{-5}$ , AND NO COMPOUNDS OTHER THAN ARSENIC EXCEED A  $10^{-6}$  RISK LEVEL (SEE SECTION 6.5). THE SURFACE SOIL ARSENIC CONCENTRATION THAT RESULTS IN A  $10^{-6}$  CANCER RISK LEVEL IS 9.3 mg/kg.
3. NONE OF THE COMPOUNDS IN THE DRAINAGE DITCH SOILS EXCEED ALLOWABLE RISK LEVELS. BASED ON THE EXPOSURE ASSUMPTIONS EVALUATED A SOIL ARSENIC CONCENTRATION OF 62 mg/kg RESULTS IN A  $10^{-6}$  CANCER RISK FOR THE RAILROAD RIGHT-OF-WAY DITCH SOILS.

#### LEGEND

- \* TEST PIT
- ◇ DITCH SAMPLE
- △ COMPOSITE SOIL SAMPLE
- △ ARSENIC CONCENTRATION  
65 (REPORTED AS mg/kg)



ACF INDUSTRIES, INC.  
RI REPORT  
ARCI1-15267-400

SURFACE SOIL SAMPLING LOCATIONS  
AND MEASURED ARSENIC CONCENTRATIONS

DATE: 4/24/02

DRAWN: A.S./SEA

FILE: 152675029

LAYOUT: Layout1

FIGURE 5-1